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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,074	07/24/2003	Yoshiki Kuhara	14925-005001	3110
20985	7590	06/27/2005	EXAMINER	
FISH & RICHARDSON, PC			PETKOVSEK, DANIEL J	
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SAN DIEGO, CA 92130-2081			PAPER NUMBER	

2874

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,074

Applicant(s)

KUHARA ET AL.

Examiner

Daniel J. Petkovsek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on application filed July 24, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-22, and 25-28 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on July 24, 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/24/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The prior art documents submitted by Applicant in the Information Disclosure Statements filed on July 24, 2003, have been considered and made of record (note attached copy of forms PTO-1449).

Specification

3. The abstract of the disclosure is objected to because: in line 5, "3d, 3e" should read "3c, 3d". Also, in line 14, "Light receiving element 15a" should read, "Optical element 15a". The light receiving device 17. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyasaka et al. U.S.P. No. 5,867,622.

Miyasaka et al. U.S.P. No. 5,867,622 teaches (Figs. 1, 3, 6; columns 7 and 8) an optical module comprising: a body having first and second regions and first and second inherent optical waveguiding regions (in which optical signals travel); a semiconductor light emitting device 1

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(also see column 8, lines 8-20) provided in a second region of the body, coupled to at least one of the waveguiding regions; a semiconductor light receiving device 2 provided in a first region of the body; an optical device 3 provided in a first region, so as to reflect a part of the incident light from the light emitter 1 to the light receiver 2 and to transmit a part of the incident light through the optical system; wherein the optical device (beam splitter) 3 is optical coupled to and provided between the two optical waveguiding areas, which clearly, fully meets Applicant's claimed limitations. Any relative claim language (predetermined axis, reference plane, etc.) used by the Applicant does not overcome the relevant prior art.

Regarding claim 2, it is inherent that the light emitting device 1 has a driving member to drive and control the functionality of such, and is mounted/attached/connected to the optical system.

Regarding claims 5 and 6, the optical element is provided in a groove in the body, and this can form an acute (45 degree) angle with the "reference" plane.

Regarding claim 7, a first region has a "primary surface", with first and second areas, in which the first waveguiding region is provided in a first area, while the second waveguiding region is provided in a second area, and the light receiving device is located in a second area.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 3, 4, 10-22, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka et al. U.S.P. No. 5,867,622.

Miyasaka et al. U.S.P. No. 5,867,622 teaches (Figs. 1, 3, 6; columns 7 and 8) an optical module comprising: a body having first and second regions and first and second inherent optical waveguiding regions (in which optical signals travel); a semiconductor light emitting device 1 (also see column 8, lines 8-20) provided in a second region of the body, coupled to at least one of the waveguiding regions; a semiconductor light receiving device 2 provided in a first region of the body; an optical device 3 provided in a first region, so as to reflect a part of the incident light from the light emitter 1 to the light receiver 2 and to transmit a part of the incident light through the optical system; wherein the optical device (beam splitter) 3 is optical coupled to and provided between the two optical waveguiding areas.

Regarding claims 3 and 16, Miyasaka et al. '622 does not explicitly teach that the inherent driving element for the light emitting element is located on a third region. Placing the drive element on a third region is viewed as a non-critical device limitation, and is an obvious design choice to a person having ordinary skill in the art.

Regarding claims 4 and 17, Miyasaka et al. '622 does not explicitly teach making the optical device capable of having further waveguiding (or fiber) regions (third and fourth) for the purpose of increasing the number of optical signals that can be propagated through the optical system. A person having ordinary skill in the art at the time the invention was made would have recognized that a mere increase (duplication or plurality) of optical waveguiding regions would have been an obvious modification to the system of Miyasaka et al. '622, for the purpose of increasing the signaling power and functionality of the optical system.

Regarding claims 10, 13, 25, and 28 transparent resins are well known in the art to cover and protect optical components such as light emitting and light receiving components. A person having ordinary skill in the art at the time the invention was made would have recognized the use of resins to place over the optical components, in order to protect these components from outside wear and tear, for the purpose of decreasing optical errors.

Regarding claims 11 and 26, Miyasaka et al. '622 does not teach that the light receiving element is a "back illuminated type" semiconductor light receiving element. Since back illuminated type semiconductor light receiving elements are well known in the art for their efficient and functional use, a person having ordinary skill in the art at the time the invention was made would have recognized the use of one of these specific receivers (although not explicitly disclosed) to improve optical capture by the receiver.

Regarding claims 12 and 27, although Miyasaka et al. '622 does not explicitly disclose a lead frame with lead terminals, a person having ordinary skill in the art at the time the invention was made would have recognized that the electrical components would have to be connected to an electrical signal for correct functionality and workability. Without electrical connectors/terminals, the device would not function.

Regarding claim 14, Miyasaka et al. '622 does not explicitly disclose that optical fibers are used throughout the optical system in the waveguiding regions. Miyasaka et al. '622 discloses the use of optical fibers to guide optical signals, but does everywhere within the body. A person having ordinary skill in the art at the time the invention was made would have recognized that waveguiding regions (such as used by Miyasaka et al. '622) and optical fibers are

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art recognized equivalents in the art. Optical fibers and waveguides perform the same function, which is to efficiently couple optical signals throughout the device.

Regarding claim 15, it is inherent that the light emitting device 1 has a driving member to drive and control the functionality of such, and is mounted/attached/connected to the optical system.

Regarding claim 18 (also see reasoning for claim 14 above), a first region has a “primary surface”, with first and second areas, in which the first fiber region is provided in a first area, while the second fiber region is provided in a second area, and the light receiving device is located in a second area.

Regarding claims 19 and 20, the fiber (replacing the waveguiding region) would be placed between the receiver and/or mount and the body/substrate.

Regarding claims 21 and 22, the optical element is provided in a groove in the body, and this can form an acute (45 degree) angle with the “reference” plane.

Allowable Subject Matter

8. Claims 8, 9, 23, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The relevant prior art of record does not teach or reasonably suggest that the optical device has a *transparent substrate*, in which emitted light passes through the substrate, and which the transparent substrate reflects a part and transmits a part of the optical signal. The relevant prior art of record does not teach or reasonably suggest, along with a transparent substrate, that a dielectric multilayer film is included (see claims 9 and 24).

Inventorship

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9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion


10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to the state of the art of optical devices that both reflect and transmit optical signals (see bidirectional devices as well): PTO-892 form references B-H.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Petkovsek whose telephone number is (571) 272-2355. The examiner can normally be reached on M-F 8:30-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel Petkovsek
June 15, 2005



AKM ENAYET ULLAH
PRIMARY EXAMINER